

```
### Status: Path 1 of [Dialog Information Services via Modem]
### Status: Initializing TCP/IP using (UseTelnetProto 1 ServiceID pto-dialog)
Trying 3106900061...Open

DIALOG INFORMATION SERVICES
PLEASE LOGON:
***** HHHHHHHH SSSSSSS?
### Status: Signing onto Dialog
*****
ENTER PASSWORD:
***** HHHHHHHH SSSSSSS? *****
Welcome to DIALOG
### Status: Connected
```

Dialog level 99.12.23D

```
Last logoff: 24feb00 17:58:29
Logon file001 25feb00 11:46:33
*** ANNOUNCEMENT ***
UPDATING RESUMED
***Kansas City Star (File 147)
 ***
RELOADED
***Kompass Latin America (File 586)
```

```
>>> Enter BEGIN HOMEBASE for Dialog Announcements <<<
>>>      of new databases, price changes, etc.      <<<
*****
```

For news about price changes for Jan 1, 2000, enter  
HELP NEWRATES.

\*\*\*\*\*

```
File 1:ERIC 1966-1999/Dec
(c) format only 2000 The Dialog Corporation
*File 1: File has been reloaded. See HELP NEWS 1.
Limits of /ED and /EJ currently not working.
```

Set	Items	Description
---	-----	-----
?file agri		
	25feb00 11:46:50	User259868 Session D12.1
	\$0.19	0.055 DialUnits File1
\$0.19	Estimated cost File1	
\$0.01	TYMNET	
\$0.20	Estimated cost this search	
\$0.20	Estimated total session cost	0.055 DialUnits

```
SYSTEM:OS - DIALOG OneSearch
File 5:Biosis Previews(R) 1969-2000/Jan W2
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*File 5: Updates renamed. See Help News5.
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File 44:Aquatic Sci&Fish Abs 1978-2000/Mar
(c) 2000 FAO (for ASFA Adv Brd)
File 50:CAB Abstracts 1972-2000/Feb
```

(c) 2000 CAB International  
File 60:CRIS/USDA 1998/Sep  
(c) format only 1998 The Dialog Corporaion pl  
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(c) 1999 The HW Wilson Co.  
File 99:Wilson Appl. Sci & Tech Abs 1983-2000/Dec  
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File 117:Water Resour.Abs. 1967-2000/Jan  
(c) 2000 Cambridge Scientific Abs.  
File 143:Biol. & Agric. Index 1983-2000/Dec  
(c) 2000 The HW Wilson Co  
File 144:Pascal 1973-2000/Jan  
(c) 2000 INIST/CNRS  
File 203:AGRIS 1974-2000/Oct  
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File 306:Pesticide Fact File 1998/Jun  
(c) 1998 BCPC

\*File 306: File has been updated & reloaded. See HELP NEWS 306. New Bluesheet available in F415 & at URL <http://library.dialog.com/bluesheets>.  
File 434:SciSearch(R) Cited Ref Sci 1974-1989/Dec  
(c) 1998 Inst for Sci Info

Set	Items	Description
---	-----	-----
?s plant(w)	transformation	
Processed	10 of 20 files ...	
Completed processing all files		
3876935	PLANT	
622121	TRANSFORMATION	
S1	1527	PLANT(W) TRANSFORMATION
?s s1 (w)	whatman?	
1527	S1	
1419	WHATMAN?	
S2	0	S1 (W) WHATMAN?
?s s1 (w)	explant	
1527	S1	
18669	EXPLANT	
S3	0	S1 (W) EXPLANT
?s s1 (s)	whatman?	
1527	S1	
1419	WHATMAN?	
S4	0	S1 (S)WHATMAN?
?s s1(s)	explant	
1527	S1	
18669	EXPLANT	
S5	14	S1(S)EXPLANT

?rd  
>>>Duplicate detection is not supported for File 60.  
>>>Duplicate detection is not supported for File 306.

>>>Records from unsupported files will be retained in the RD set.  
...completed examining records  
S6 5 RD (unique items)

?t

6/2/1 (Item 1 from file: 5)  
DIALOG(R)File 5:Biosis Previews(R)  
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12040895 BIOSIS NO.: 199900321414

**Plant regeneration from mature Avena tissue explants.**

AUTHOR: Hassan G(a); Zipf A(a); Sharma G C(a); Wesenberg D

AUTHOR ADDRESS: (a)Department of Plant and Soil Science, Alabama A and M University, Normal, AL, 35762\*\*USA

JOURNAL: Cereal Research Communications 27 (1-2):p25-32 1999

ISSN: 0133-3720

DOCUMENT TYPE: Article

RECORD TYPE: Abstract

LANGUAGE: English

SUMMARY LANGUAGE: English

REGISTRY NUMBERS: 94-75-7: 2 4-D; 1918-00-9: DICAMBA; 1918-02-1: PICLORAM

DESCRIPTORS:

MAJOR CONCEPTS: Agronomy (Agriculture); Methods and Techniques  
BIOSYSTEMATIC NAMES: Gramineae--Monocotyledones, Angiospermae,  
Spermatophyta, Plantae

ORGANISMS: Avena (Gramineae)--grain crop

BIOSYSTEMATIC CLASSIFICATION (SUPER TAXA): Angiosperms; Monocots; Plants;  
Spermatophytes; Vascular Plants

CHEMICALS & BIOCHEMICALS: dicamba--plant growth regulator; picloram--  
plant growth regulator; 2,4-D--plant growth regulator

METHODS & EQUIPMENT: embryo explant culture--tissue culture method;  
hypocotyl explant culture--tissue culture method

CONCEPT CODES:

52504 Agronomy-Grain Crops

32500 Tissue Culture, Apparatus, Methods and Media

51514 Plant Physiology, Biochemistry and Biophysics-Growth Substances

51524 Plant Physiology, Biochemistry and Biophysics-Apparatus and  
Methods

BIOSYSTEMATIC CODES:

25305 Gramineae

?show files; ds;ts6/full/all

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File 34:SciSearch(R) Cited Ref Sci 1990-2000/Feb W3  
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File 306:Pesticide Fact File 1998/Jun  
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File 434:SciSearch(R) Cited Ref Sci 1974-1989/Dec  
(c) 1998 Inst for Sci Info

Set	Items	Description
S1	1527	PLANT(W) TRANSFORMATION
S2	0	S1 (W) WHATMAN?
S3	0	S1 (W) EXPLANT
S4	0	S1 (S)WHATMAN?
S5	14	S1(S)EXPLANT
S6	5	RD (unique items)

6/9/1 (Item 1 from file: 5)  
DIALOG(R)File 5:Biosis Previews(R)  
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12040895 BIOSIS NO.: 199900321414

**Plant regeneration from mature Avena tissue explants.**

AUTHOR: Hassan G(a); Zipf A(a); Sharma G C(a); Wesenberg D

AUTHOR ADDRESS: (a)Department of Plant and Soil Science, Alabama A and M University, Normal, AL, 35762\*\*USA

JOURNAL: Cereal Research Communications 27 (1-2):p25-32 1999

ISSN: 0133-3720

DOCUMENT TYPE: Article

RECORD TYPE: Abstract

LANGUAGE: English

SUMMARY LANGUAGE: English

ABSTRACT: Successful **plant transformation** is dependent upon a reliable plant regeneration system. In cereals, immature embryos are the explants of choice but are inconvenient due to their temporal nature and maintenance requirements. The effects of three different auxins, 2,4-D, dicamba, and picloram, on two mature tissue **explant** types, mature embryo and hypocotyl, of three Avena genotypes, GAF/Park, Park, and 88Ab3073, were evaluated for callus formation, somatic embryogenesis (SE), and plant regeneration capabilities. Both mature embryo and hypocotyl explants were proliferated on modified Murashige and Skoog (MS) basal medium containing 5, 10, and 20  $\mu$ M of each auxin and were regenerated on 1/2-MS medium without hormone. Although plant number was significantly correlated with SE number, it was not absolutely linked to a priori somatic embryogenesis, especially for 88AB3073 explants. While stimulating callus growth, both dicamba and picloram decreased embryogenicity and regenerability over that obtained with 2,4-D. Picloram may be useful for the isolation of SE-related genes as somatic embryogenesis in oat callus was strongly inhibited in the presence of picloram.

REGISTRY NUMBERS: 94-75-7: 2 4-D; 1918-00-9: DICAMBA; 1918-02-1: PICLORAM  
DESCRIPTORS:

MAJOR CONCEPTS: Agronomy (Agriculture); Methods and Techniques

BIOSYSTEMATIC NAMES: Gramineae--Monocotyledones, Angiospermae, Spermatophyta, Plantae

ORGANISMS: Avena (Gramineae)--grain crop

BIOSYSTEMATIC CLASSIFICATION (SUPER TAXA): Angiosperms; Monocots; Plants; Spermatophytes; Vascular Plants

CHEMICALS & BIOCHEMICALS: dicamba--plant growth regulator; picloram-- plant growth regulator; 2,4-D--plant growth regulator

METHODS & EQUIPMENT: embryo explant culture--tissue culture method; hypocotyl explant culture--tissue culture method

CONCEPT CODES:

52504 Agronomy-Grain Crops

32500 Tissue Culture, Apparatus, Methods and Media

51514 Plant Physiology, Biochemistry and Biophysics-Growth Substances  
51524 Plant Physiology, Biochemistry and Biophysics-Apparatus and  
Methods  
BIOSYSTEMATIC CODES:  
25305 Gramineae

6/9/2 (Item 2 from file: 5)  
DIALOG(R) File 5:Biosis Previews(R)  
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10704323 BIOSIS NO.: 199799325468

**High frequency shoot regeneration from leaf explants of muskmelon.**  
AUTHOR: Yadav R C; Saleh Mohamed T; Grumet Rebecca(a)  
AUTHOR ADDRESS: (a)Hortic. Dep., Mich. State Univ., East Lansing, MI 48824  
\*\*USA  
JOURNAL: Plant Cell Tissue and Organ Culture 45 (3):p207-214 1996  
ISSN: 0167-6857  
RECORD TYPE: Abstract  
LANGUAGE: English

**ABSTRACT:** Efficient in vitro plant regeneration systems are critical for many purposes including **plant transformation**. Current regeneration systems for melon (*Cucumis melo* L.) plants generally utilize cotyledon explants; regeneration from melon leaves has received limited attention. We investigated several factors that influence regeneration from melon leaves including: genotype growth conditions and age of the source plant, leaf age, **explant** orientation, gelling agent, and the addition of silver nitrate and sulfonylurea herbicide to the culture media. Critical factors that influenced regeneration were preculture conditions of the donor plants, leaf size, and the use of silver nitrate and Phytagel in the medium. The best results were obtained with 3-4 cm diam leaves excised from pot grown greenhouse or growth chamber plants cultured on MS medium with 5 mu-M IAA, 5 mu-M BA, 1 mu-M ABA, 30 mu-M silver nitrate and 2.6 g l-1 Phytagel. Low concentrations of sulfonylurea herbicide (0.25 mg l-1 DPX-M 6316) also enhanced regeneration. Under optimized conditions 80-100% of the explants regenerated, with 10-100 shoots per **explant**.

REGISTRY NUMBERS: 7761-88-8: SILVER NITRATE; 74-85-1: ETHYLENE; 71010-52-1: PHYTAGEL; 21293-29-8: ABSCISIC ACID; 1214-39-7: BENZYLADENINE; 87-51-4: INDOLE-3-ACETIC ACID; 86-87-3Q: NAPHTHALENEACETIC ACID; 26445-01-2Q: NAPHTHALENEACETIC ACID

DESCRIPTORS:

MAJOR CONCEPTS: Biochemistry and Molecular Biophysics; Cell Biology; Chemical Coordination and Homeostasis; Development; Methods and Techniques; Morphology; Pest Assessment Control and Management; Systematics and Taxonomy

BIOSYSTEMATIC NAMES: Cucurbitaceae--Dicotyledones, Angiospermae, Spermatophyta, Plantae

ORGANISMS: muskmelon (Cucurbitaceae); *Cucumis melo* (Cucurbitaceae)

BIOSYSTEMATIC CLASSIFICATION (SUPER TAXA): angiosperms; dicots; plants; spermatophytes; vascular plants

CHEMICALS & BIOCHEMICALS: SILVER NITRATE; ETHYLENE; PHYTAGEL; ABSCISIC ACID; BENZYLADENINE; INDOLE-3-ACETIC ACID; NAPHTHALENEACETIC ACID

MISCELLANEOUS TERMS: Research Article; ABSCISIC ACID; AGE; BENZYLADENINE; CONDITIONS; COTYLEDON; DEVELOPMENT; ETHYLENE ACTION INHIBITOR; EXPLANT; GELLING AGENT; GENOTYPE; GROWTH; HERBICIDE; HIGH FREQUENCY REGENERATION; IN VITRO PLANT REGENERATION; INDOLE-3-ACETIC ACID; LEAF; METHODOLOGY; MISCELLANEOUS METHOD; MURASHIGE AND SKOOG MEDIUM; NAPHTHALENEACETIC ACID; ORIENTATION; PHYTAGEL; PLANT GROWTH REGULATOR; SHOOT; SILVER NITRATE; SULFONYLUREA

CONCEPT CODES:

02504 Cytology and Cytochemistry-Plant  
10060 Biochemical Studies-General  
50526 Botany, General and Systematic-Dicotyledones  
51000 Morphology, Anatomy and Embryology of Plants

51510 Plant Physiology, Biochemistry and Biophysics-Growth,  
Differentiation  
51514 Plant Physiology, Biochemistry and Biophysics-Growth Substances  
51524 Plant Physiology, Biochemistry and Biophysics-Apparatus and  
Methods  
54600 Pest Control, General; Pesticides; Herbicides  
BIOSYSTEMATIC CODES:  
25890 Cucurbitaceae

**6/9/3 (Item 3 from file: 5)**

DIALOG(R)File 5:Biosis Previews(R)  
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09674295 BIOSIS NO.: 199598129213

**The competence of cells for cell division and regeneration in tobacco explants depends on cellular location, cell cycle phase and ploidy level.**

AUTHOR: Gilissen Luud J W(a); Van Staveren Marjo J; Hakkert Johanna C;

Smulders Marinus J M; Verhoeven Harrie A; Creemers-Molenaar Jantina

AUTHOR ADDRESS: (a)Dep. Cell Biol., DLO-Cent. Plant Breed. Reprod. Res.,  
P.O. Box 16, NL-6700 AA Wageningen\*\*Netherlands

JOURNAL: Plant Science (Limerick) 103 (1):p81-91 1994

ISSN: 0168-9452

DOCUMENT TYPE: Article

RECORD TYPE: Abstract

LANGUAGE: English

**ABSTRACT:** This work concerns application of flow cytometry (FCM) and confocal laser scanning microscopy (CLSM) to investigate the competence of cells for cell division and regeneration. FCM analysis of freshly-cut thin cell layer (TCL) explants of *Nicotiana tabacum*, excised from upper internodes of vegetative plants, revealed that one-quarter of the cells had the 2C nuclear DNA content, whereas of the other cells most nuclei had the 4C and some had the 8C DNA content. Cytometric examination using CLSM showed that the 2C nuclei were mainly located in the epidermis and subepidermis, and the 4C nuclei predominantly in the cortical tissue. During culture of the explants, part of the cortical cells went through mitosis from the first day onwards, and formed callus from which predominantly diploid and some tetraploid roots regenerated at low frequency. Most cortical cells were thus in the G-2 phase of the diploid cell cycle. FCM analysis showed that another fraction of the 4C cortical cells was induced to endoreduplicate to 8C cells. These cells thus had previously switched to the G-1 phase of the tetraploid cell cycle. CLSM analysis revealed that subepidermal and epidermal cells, respectively, underwent cell division from the second and third day onwards. Shoot primordia developed from cells of both cell layers together. Most shoot regenerants were normal diploids, some were mixoploids or tetraploids. The combination of FCM and CLSM allowed identification of the cell cycle phase, the ploidy level, the position of the cell, and the cellular development. The results give insight into the involvement of these parameters in the competence for cell division and regeneration at the level of the individual **explant** cells, and are therefore relevant for cellular and molecular approaches to **plant transformation**.

**DESCRIPTORS:**

MAJOR CONCEPTS: Cell Biology; Development; Genetics; Methods and Techniques

BIOSYSTEMATIC NAMES: Solanaceae--Dicotyledones, Angiospermae,  
Spermatophyta, Plantae

ORGANISMS: *Nicotiana tabacum* (Solanaceae)

BIOSYSTEMATIC CLASSIFICATION (SUPER TAXA): angiosperms; dicots; plants;  
spermatophytes; vascular plants

MISCELLANEOUS TERMS: CONFOCAL LASER SCANNING MICROSCOPY; FLOW CYTOMETRY  
; PLANT TRANSFORMATION

**CONCEPT CODES:**

02504 Cytology and Cytochemistry-Plant

03504      Genetics and Cytogenetics-Plant  
32500      Tissue Culture, Apparatus, Methods and Media  
51510      Plant Physiology, Biochemistry and Biophysics-Growth,  
                Differentiation  
51524      Plant Physiology, Biochemistry and Biophysics-Apparatus and  
                Methods  
01052      Microscopy Techniques-General and Special Techniques  
BIOSYSTEMATIC CODES:  
26775      Solanaceae

6/9/4      (Item 4 from file: 5)  
DIALOG(R) File    5:Biosis Previews(R)  
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09542573    BIOSIS NO.: 199497550943  
**Factors that affect leaf regeneration efficiency in apple, and effect of antibiotics in morphogenesis.**  
AUTHOR: Yepes Luz Marcella; Aldwinckle Herb S  
AUTHOR ADDRESS: Dep. Plant Pathol., Cornell Univ., NYS Agric. Exp. Stn.,  
Geneva, NY 14456\*\*USA  
JOURNAL: Plant Cell Tissue and Organ Culture 37 (3):p257-269 1994  
ISSN: 0167-6857  
DOCUMENT TYPE: Article  
RECORD TYPE: Abstract  
LANGUAGE: English

ABSTRACT: Several factors that affect the frequency of organogenesis in apple leaf explants were examined for the scion cultivars 'Empire', 'Freedom', 'Golden Delicious', 'Liberty', 'McIntosh', and 'Mutsu' and for the rootstocks Malling 7A and Malling 26. The main factors affecting morphogenesis were BA concentration, basal medium, leaf **explant** origin and maturity, **explant** orientation, and photosynthetic photon flux. Depending on the genotype, optimal regeneration was obtained using either 22.2 or 31.1 mu-M BA and the N6 basal medium, with the exception of 'Golden Delicious' which regenerated better on MS medium. After 6 weeks, the average number of shoots per segment varied from 5 to 16, and the percentage of regeneration between 70 and 100%, depending on the genotype tested and the maturity of the **explant**. Regeneration capacity increased dramatically from the tip towards the base of the leaf, and was higher from the middle to the proximal end. Cefotaxime and carbenicillin, two antibiotics commonly used during transformation studies to eliminate Agrobacterium tumefaciens from plant tissue, were tested to determine their effect on morphogenesis. Cefotaxime at a dose of 250 mg l-1 enhanced regeneration and shoot development, whereas carbenicillin at a dose of 500 mg l-1 induced abundant callus formation and inhibited regeneration. Kanamycin, a widely used selection agent for **plant transformation**, strongly inhibited regeneration even at very low doses. Schemes for selection and recovery of transgenic apple plants when kanamycin is used as the selection agent are discussed.

REGISTRY NUMBERS: 1214-39-7: BENZYLADENINE; 63527-52-6: CEFOTAXIME;  
4697-36-3: CARBENICILLIN; 59-01-8Q: KANAMYCIN; 8063-07-8Q: KANAMYCIN  
DESCRIPTORS:

MAJOR CONCEPTS: Biochemistry and Molecular Biophysics; Development;  
Genetics; Infection; Methods and Techniques; Morphology; Pest  
Assessment Control and Management; Physiology

BIOSYSTEMATIC NAMES: Rhizobiaceae--Eubacteria, Bacteria; Rosaceae--  
Dicotyledones, Angiospermae, Spermatophyta, Plantae

ORGANISMS: Agrobacterium tumefaciens (Rhizobiaceae); Malus domestica  
(Rosaceae)

BIOSYSTEMATIC CLASSIFICATION (SUPER TAXA): angiosperms; bacteria; dicots;  
eubacteria; microorganisms; plants; spermatophytes; vascular plants

CHEMICALS & BIOCHEMICALS: BENZYLADENINE; CEFOTAXIME; CARBENICILLIN;  
KANAMYCIN

MISCELLANEOUS TERMS: BASAL MEDIUM; BENZYLADENINE CONCENTRATION; CALLUS

FORMATION; CARBENICILLIN; CEFOTAXIME; CULTIVAR EMPIRE; CULTIVAR FREEDOM; CULTIVAR GOLDEN DELICIOUS; CULTIVAR LIBERTY; CULTIVAR MCINTOSH; CULTIVAR MUTSU; EXPLANT ORIENTATION; GENOTYPE; KANAMYCIN; LEAF EXPLANT ORIGIN; PHOTOSYNTHETIC PHOTON FLUX; REGENERATION INHIBITION; ROOTSTOCK MALLING 26; ROOTSTOCK MALLING 7A

CONCEPT CODES:

- 03504 Genetics and Cytogenetics-Plant
  - 10010 Comparative Biochemistry, General
  - 31000 Physiology and Biochemistry of Bacteria
  - 32500 Tissue Culture, Apparatus, Methods and Media
  - 51000 Morphology, Anatomy and Embryology of Plants
  - 51510 Plant Physiology, Biochemistry and Biophysics-Growth, Differentiation
  - 51524 Plant Physiology, Biochemistry and Biophysics-Apparatus and Methods
  - 54504 Phytopathology-Diseases Caused by Bacteria
  - 54600 Pest Control, General; Pesticides; Herbicides
  - 10060 Biochemical Studies-General
  - 25508 Developmental Biology-Embryology-Morphogenesis, General
- BIOSYSTEMATIC CODES:
- 06509 Rhizobiaceae (1992- )
  - 26675 Rosaceae

6/9/5 (Item 1 from file: 203)

DIALOG(R) File 203:AGRIS

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02018105 AGRIS No: 96-105731

Histology of somatic embryogenesis and evaluation of somaclonal variation ([Histologia de embriogénesis somática y evaluación de variación somaclonal])

Raemakers, C.J.J.M.; Jacobsen, Evert; Visser, Richard G.F.

Conference Title: 2.The Cassava Biotechnology Network

Conference Location and Year: Bogor (Indonesia), 2-26 Aug 1994

The Cassava Biotechnology Network : proceedings of the second international scientific meeting, Bogor, Indonesia, 22-26 August 1994 ([La red de biotecnología de yuca : memorias de la segunda reunión científica internacional, Bogor, Indonesia, 22-26 agosto 1994])

Centro Internacional de Agricultura Tropical, Cali (Colombia)

Publisher: CIAT , Cali (Colombia), 1995, v. 1 p. 336-354

Series title: Working document (CBN; CRIFC; AARD; CIAT), no. 150

Notes: (Accession no. SB211.C3C372)

Notes: Ill., 18 ref.

Language: English Summary Language: English

Place of Publication: Colombia

Availability: CIAT (Intl Centre for Tropical Agriculture) Center

Document Type: Analytic, Monograph, Conference, Summary,

Nonconventional Literature

Journal Announcement: 2209 Record input by CIAT (Intl Centre for Tropical Agriculture)

Abstract in English

Genetic modification of cassava is dependent on the availability of efficient regeneration procedures and the resulting plants should be true to type. A system has been developed where somatic embryos can be cultured to produce secondary embryos (cyclic somatic embryogenesis). The origin of secondary embryos was studied using histological and scanning electron microscopical techniques. It was concluded that secondary embryos originate directly from the explant, from internal cell layers and from multiple cells. These three characteristics explain the difficulties observed in using somatic embryogenesis for plant transformation purposes. Strategies to overcome these problems will be discussed. Further, it was observed that most mature embryos did not possess a root meristem because of the callusing effect of 2,4-D. This might explain the difficulties observed with shoot conversion of somatic embryos. An advantage of the multicellular origin of somatic embryos is the fact that

it might give rise to genetically stable plants. Although a clear example of genetic induced variation was found, it was concluded that the regeneration process was not accompanied with clear negative plant development characteristics.

Descriptors in English: \*MANIHOT ESCULENTA; \*IN VITRO CULTURE; \*SOMATIC EMBRYOS; \*EMBRYONIC DEVELOPMENT; \*PLANT TISSUES; BIOLOGICAL DEVELOPMENT; CULTURE TECHNIQUES; DEVELOPMENTAL STAGES; EUPHORBIACEAE; MANIHOT; PLANT ANATOMY; PLANT DEVELOPMENTAL STAGES; PLANT EMBRYOS;

Descriptors in Spanish: \*MANIHOT ESCULENTA; \*CULTIVO IN VITRO; \*EMBRION SOMATICO; \*DESARROLLO EMBRIONARIO; \*TEJIDOS VEGETALES; ANATOMIA DE LA PLANTA; DESARROLLO BIOLOGICO; EMBRIONES VEGETALES; ETAPAS DE DESARROLLO; ETAPAS DE DESARROLLO DE LA PLANTA; EUPHORBIACEAE; MANIHOT; TECNICAS DE CULTIVO;

Descriptors in French: \*MANIHOT ESCULENTA; \*CULTURE IN VITRO; \*EMBRYON SOMATIQUE; \*DEVELOPPEMENT EMBRYONNAIRE; \*TISSU VEGETAL; ANATOMIE VEGETALE; DEVELOPPEMENT BIOLOGIQUE; EMBRYON VEGETAL; EUPHORBIACEAE; MANIHOT; STADE DE DEVELOPPEMENT; STADE DE DEVELOPPEMENT VEGETAL; TECHNIQUE DE CULTURE;

Section Headings: F02 (PLANT PRODUCTION -- Plant propagation) ; F62 (PLANT PRODUCTION -- Plant physiology - growth and development)  
?

PLEASE ENTER A COMMAND OR BE LOGGED OFF IN 5 MINUTES  
?

### Status: Signed Off. (24 minutes)

### Status: Path 1 of [Dialog Information Services via Modem]

### Status: Initializing TCP/IP using (UseTelnetProto 1 ServiceID pto-dialog)  
Trying 3106900061...Open

DIALOG INFORMATION SERVICES  
PLEASE LOGON:

\*\*\*\*\* HHHHHHHH SSSSSSSS?

### Status: Signing onto Dialog  
\*\*\*\*\*

ENTER PASSWORD:

\*\*\*\*\* HHHHHHHH SSSSSSSS? \*\*\*\*\*

Welcome to DIALOG

### Status: Connected

Dialog level 99.12.23D

Reconnected in file AGRI 25feb00 12:13:43

SYSTEM:OS - DIALOG OneSearch

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\*File 306: File has been updated & reloaded. See HELP NEWS 306. New Bluesheet available in F415 & at URL <http://library.dialog.com/bluesheets>.  
File 434:SciSearch(R) Cited Ref Sci 1974-1989/Dec  
(c) 1998 Inst for Sci Info

Set Items Description  
--- ---  
? s plant (s) transformation  
Processed 10 of 20 files ...  
Completed processing all files  
3876935 PLANT  
622121 TRANSFORMATION  
S7 16849 PLANT (S) TRANSFORMATION  
?s s7 (s) moisture  
16849 S7  
287648 MOISTURE  
S8 74 S7 (S) MOISTURE

?rd  
>>>Duplicate detection is not supported for File 60.  
>>>Duplicate detection is not supported for File 306.

>>>Records from unsupported files will be retained in the RD set.  
...examined 50 records (50)  
>>>Record 266:270999 ignored; incomplete bibliographic data, not retained -  
in RD set  
>>>Record 266:269052 ignored; incomplete bibliographic data, not retained -  
in RD set  
...completed examining records

S9 55 RD (unique items)

?s s9 (s) reduction  
55 S9  
1350820 REDUCTION

S10 5 S9 (S) REDUCTION

?show files;ds;t s10/full/all

File 5:Biosis Previews(R) 1969-2000/Jan W2  
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File 44:Aquatic Sci&Fish Abs 1978-2000/Mar  
     (c) 2000 FAO (for ASFA Adv Brd)  
 File 50:CAB Abstracts 1972-2000/Feb  
     (c) 2000 CAB International  
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 File 98:General Sci Abs/Full-Text 1984-1999/Oct  
     (c) 1999 The HW Wilson Co.  
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     (c) 2000 The HW Wilson Co.  
 File 117:Water Resour.Abs. 1967-2000/Jan  
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 File 143:Biol. & Agric. Index 1983-2000/Dec  
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 File 434:SciSearch(R) Cited Ref Sci 1974-1989/Dec  
     (c) 1998 Inst for Sci Info

Set	Items	Description
S1	1527	PLANT(W) TRANSFORMATION
S2	0	S1 (W) WHATMAN?
S3	0	S1 (W) EXPLANT
S4	0	S1 (S) WHATMAN?
S5	14	S1(S) EXPLANT
S6	5	RD (unique items)
S7	16849	PLANT (S) TRANSFORMATION
S8	74	S7 (S) MOISTURE
S9	55	RD (unique items)
S10	5	S9 (S) REDUCTION

**10/9/1 (Item 1 from file: 5)**  
 DIALOG(R)File 5:Biosis Previews(R)  
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10330220 BIOSIS NO.: 199698785138  
 On the rate of water loss of forage grasses and legumes in the primary growth at defined stages of growth.  
 AUTHOR: Kammerl Rita; Simon Uwe  
 AUTHOR ADDRESS: Technische Univ. Muenchen, Lehrstuhl Gruenlandlehre,  
     D-85350 Freising-Weihenstephan\*\*Germany  
 JOURNAL: Wirtschaftseigene Futter 41 (2):p182-195 1995  
 ISSN: 0049-7711  
 DOCUMENT TYPE: Article  
 RECORD TYPE: Abstract  
 LANGUAGE: German; Non-English  
 SUMMARY LANGUAGE: German; English

ABSTRACT: The rate of water loss in 19 species and cultivars of forage grasses and legumes was investigated in two series of experiments during the primary growth at four consecutive stages of plant development. During a drying period of ten or six hours, respectively, at 50 degree C, the water loss of the plants was determined in hourly intervals. The average initial water content was 82,4%; the average final water content

was 43.7%. Within this range of humidity, and after transformation of the relative water content to log n% moisture degree, the rate of water loss is significantly linear. Under this condition, the water loss can be described by the linear regression equation  $y = a + bx$ . The coefficient of regression b indicates the rate of water loss. Both the initial water content and the rate of water loss vary significantly with the species/variety, the stage of maturity and the year of harvest. Among the grasses the rate of water loss is fastest in *Poa pratensis*, slowest in *Phleum pratense* and *Festuca pratensis*. The drying rate of *Lolium* and *Dactylis glomerata* varies according to the investigated cultivars. The diploid type is more suitable for drying than the tetraploid. The reduction of water content in the grasses is slower during ear emergence than at stem elongation and flowering, respectively. The rate of water loss in legumes compares favorably with that of the grasses. Consequently, the final water content of legumes and grasses are similar, despite the generally higher initial water content of the legumes. *Trifolium repens* ability to evaporate water is superior. *Medicago sativa* shows also very good drying characteristics. *Trifolium resupinatum* and *alexandrinum* surpass *Trifolium pratense* in the rate of water loss.

DESCRIPTORS:

MAJOR CONCEPTS: Agronomy (Agriculture); Biochemistry and Molecular Biophysics; Development; Physiology; Reproduction

BIOSYSTEMATIC NAMES: Gramineae--Monocotyledones, Angiospermae, Spermatophyta, Plantae; Leguminosae--Dicotyledones, Angiospermae, Spermatophyta, Plantae; Plantae-Unspecified--Plantae

ORGANISMS: plant (Plantae - Unspecified); *Dactylis glomerata* (Gramineae); *Festuca pratensis* (Gramineae); *Lolium* (Gramineae); *Medicago sativa* (Leguminosae); *Phleum pratense* (Gramineae); *Poa pratensis* (Gramineae); *Trifolium alexandrinum* (Leguminosae); *Trifolium pratense* (Leguminosae); *Trifolium repens* (Leguminosae); *Trifolium resupinatum* (Leguminosae)

BIOSYSTEMATIC CLASSIFICATION (SUPER TAXA): angiosperms; dicots; monocots; plants; spermatophytes; vascular plants

INDUSTRY: crop industry

MISCELLANEOUS TERMS: FLOWERING; VEGETATIVE GROWTH; 19 GRASS AND LEGUME SPECIES AND CULTIVARS

CONCEPT CODES:

- 10011 Biochemistry-Physiological Water Studies (1970- )
- 51502 Plant Physiology, Biochemistry and Biophysics-Water Relations
- 51510 Plant Physiology, Biochemistry and Biophysics-Growth, Differentiation
- 51512 Plant Physiology, Biochemistry and Biophysics-Reproduction
- 52506 Agronomy-Forage Crops and Fodder

BIOSYSTEMATIC CODES:

- 25305 Gramineae
- 26260 Leguminosae

10/9/2 (Item 2 from file: 5)

DIALOG(R)File 5:Biosis Previews(R)  
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02721725 BIOSIS NO.: 000068032321

CAUSES FOR THE DETERIORATION OF PASTURES IN THE KARA-KUM USSR

AUTHOR: MIROSHNICHENKO YU M

AUTHOR ADDRESS: V.L. KOMAROV BOT. INST., ACAD. SCI. USSR, LENINGRAD, USSR.  
JOURNAL: RASTIT RESUR 14 (4). 1978. 469-477.

FULL JOURNAL NAME: Rastitel'nye Resursy

CODEN: RRESA

RECORD TYPE: Abstract

LANGUAGE: RUSSIAN

ABSTRACT: A 1965-1977 study of dry pasture phytocenoses in grazed and ungrazed portions of the Kara Kum desert (Turkmen SSR, USSR) concluded that the primary factor in the deterioration of the plant cover was anthropogenic. Irrational use of the open pasture land was characterized

by overgrazing with sheep and camels near water and undergrazing in portions with no practical access to water, resulting in the latter case in the overgrowth of the desert moss *Tortula desertorum*. The moss prevented **moisture** from reaching the topsoil and resulted in a change of the species composition of sedge-sexual phytocenoses and **reduction** of green phytomass. Overgrazing resulted in elimination of virtually all **plant** cover and **transformation** of the pasture land into sand dunes. Ameliorative measures suggested include winter sheep pasturage in outlying pastures at least once every 3 yr and harrowing of the sod surface.

DESCRIPTORS: TORTULA-DESERTORUM SEDGE SAXAUL SHEEP CAMELS OVER GRAZING  
WATER ACCESSIBILITY

CONCEPT CODES:

- 00512 General Biology-Conservation, Resource Management
- 26504 Animal Production-Feeds and Feeding
- 52506 Agronomy-Forage Crops and Fodder
- 52807 Soil Science-Fertility and Applied Studies (1970- )

BIOSYSTEMATIC CODES:

- 21600 Musci
- 25280 Cyperaceae
- 25795 Chenopodiaceae
- 85715 Bovidae
- 85720 Camelidae

BIOSYSTEMATIC CLASSIFICATION (SUPER TAXA):

- Plants
- Nonvascular Plants
- Bryophytes
- Vascular Plants
- Spermatophytes
- Angiosperms
- Monocots
- Dicots
- Animals
- Chordates
- Vertebrates
- Nonhuman Vertebrates
- Mammals
- Nonhuman Mammals
- Artiodactyls

10/9/3 (Item 1 from file: 50)

DIALOG(R) File 50:CAB Abstracts  
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01712804 CAB Accession Number: 860784509

**Study of the action mechanism of the herbicide paraquat.**

Original Title: A paraquat herbicid hatásmechanizmusának vizsgálata.  
Hunyadi, K.

Agrartudományi Egyetem, Keszthely, Hungary.

A Keszthelyi Mezogazdaságtudományi Karon elfogadott doktori  
disszertaciok jegyzéke vol. 1 p.85-86

Publication Year: 1983

Language: Hungarian

Document Type: Journal article

Energy for chemical **reduction** of paraquat in the **plant** is supplied by photosynthesis. When molecular oxygen induces recombination, hydrogen peroxide is formed as a byproduct which destroys the **plant** cells. Sunshine increases the speed of chemical **transformation**, while high **moisture** content increased adsorption and translocation of the paraquat. Clay or peat in the soil adsorbed paraquat without inactivating it. Dust cover on the foliage reduced the effect of paraquat on the **plant**.

DESCRIPTORS: Paraquat; physiology; mode of action; photosynthesis;  
adsorption; translocation; degradation; soil; photolysis; weeds;

herbicides  
CAS REGISTRY NUMBERS: 4685-14-7; 1910-42-5; 2074-50-2  
GEOGRAPHIC NAMES: Hungary  
BROADER TERMS: quaternary ammonium herbicides; herbicides; pesticides;  
plants; Central Europe; Europe  
CABICODES: Control by Chemicals & Drugs (HH400); Weeds & Noxious Plants  
(FF500); Soil Science (JJ000)

10/9/4 (Item 1 from file: 94)

DIALOG(R) File 94:JICST-EPlus

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00149193 JICST ACCESSION NUMBER: 85A0483180 FILE SEGMENT: JICST-E  
**Effects of oxidation-reduction potential and oxygen concentration on transformation of nitrate nitrogen in soil.**

ITO HIDEFUMI (1); ARAKI KOICHI (1)

(1) Vegetable and Ornamental Crops Res. Stn.

Yasai Shikenjo Hokoku. A(Bulletin of the Vegetable and Ornamental Crops Research Station. Series A), 1984, NO.12, PAGE.119-129, FIG.13, TBL.1, REF.24

JOURNAL NUMBER: Z0733AAE ISSN NO: 0387-5407 CODEN: YSHAD

UNIVERSAL DECIMAL CLASSIFICATION: 631.41/.43

LANGUAGE: Japanese COUNTRY OF PUBLICATION: Japan

DOCUMENT TYPE: Journal

ARTICLE TYPE: Original paper

MEDIA TYPE: Printed Publication

**ABSTRACT:** Recently, intensive soil management practices are being adopted in vegetable cultivation such as submerging and leaching for removing the excess of nitrate and salts, application of a large amount of organic matter for improving the physical, chemical and biological properties of soil and solar sterilization in closed vinyl houses for the control of soil-borne pathogens. Such practices promote the **transformation** of  $\text{NO}_3^-$  compounds into  $\text{NO}_2^-$  compounds, NO and  $\text{NO}_2$  which adversely affect **plant** growth and to  $\text{N}_2\text{O}$  and  $\text{N}_2$  which easily undergo a denitrification process. In this paper the relationship between  $\text{NO}_3^-$  **reduction** and **oxidation-reduction** potential or oxygen concentration (upland conditions) in soil were investigated by incubation experiments in order to obtain an index reflecting the **transformation** process of nitrate nitrogen. In the incubation experiments, glass bottles (300 ml) sealed with rubber caps fitted with silicon septa were used. Soil **moisture** was controlled to reach upland conditions (60% of water holding capacity) and submerged conditions, respectively. Initial soil pH was adjusted to about 7.0 and 7.5. In order to stimulate the **reduction** process, 400mg glucose per 100g dry soil were added but the air in the bottles was not replaced. Besides the incubation experiments  $\text{N}_2\text{O}$  production under upland conditions was investigated in an open system in relation to the **oxidation-reduction** potential and oxygen concentration in soil. 1. Effect of changes in the **oxidation-reduction** potential on the **transformation** of nitrate nitrogen in soil (1)

**Reduction** of  $\text{NO}_3^-$  to  $\text{NO}_2^-$  in the soil began at values of the **oxidation-reduction** potential ( $Eh$ ) of 600-650mV. Accumulation of  $\text{NO}_2^-$  was maximum at values of 460-490mV and the  $\text{NO}_3^-$  level decreased by half. Nitrate almost disappeared at values of about 440mV under submerged conditions and 250-350mV under upland conditions. (abridged author abst.)

**DESCRIPTORS:** nitrate nitrogen; oxidation-reduction potential; oxygen; concentration(ratio); reduction(reaction); impounding; upland field soil; nitrogen dioxide; dinitrogen oxide; soil atmosphere

**BROADER DESCRIPTORS:** nitrogen form; element form; electric potential; oxygen group element; element; second row element; degree; chemical reaction; ponding; storage; cultivated soil; soil; nitrogen oxide; oxide; chalcogenide; oxygen group element compound; oxygen compound; nitrogen compound; nitrogen group element compound; air; gas; soil component; component

**CLASSIFICATION CODE(S):** FB04040C

10/9/5 (Item 1 from file: 203)

DIALOG(R) File 203:AGRIS

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01587213 AGRIS No: 92-037522

**Sulfur transformation in lowland rice soils and its management**

Xie, Liangshang

Philippines Univ., Los Banos, College, Laguna (Philippines)

Thesis Degree: Thesis (M.S. in Soil Science)

Publisher: , College, Laguna (Philippines), Sep 1989, 143 leaves

Notes: 2 ill.; 21 graphs; 49 tables. Bibliography (140 ref.).

Appendices. Received Jan 1990

Language: English Summary Language: English

Place of Publication: Philippines

Document Type: Monograph, Dissertation, Bibliography, Summary,  
Nonconventional Literature

Journal Announcement: 1804 Record input by Philippines  
Abstract in English

**Transformation** of added  $35\text{SO}_4^{2-}$  [sulfate ion] in two selected lowland rice soils were investigated. Under submerged condition, **reduction** of  $35\text{SO}_4^{2-}$  to  $35\text{S}^{2-}$  rapidly increased at initial incubation period and then maintained an almost consistent rate. Application of Sesbania or rice straw significantly aggravated sulfate **reduction** and hydrogen sulfide volatilization. Under 80% of field capacity condition, Banauang sandy loam soil incubated without organic material had higher capacity to return added  $35\text{SO}_4^{2-}$  than San Pablo clayey soil. However, the rate of sulfide formation was almost equal in both soils when organic material was applied. At 60 days under flooded condition, more inorganic S was incorporated to organic forms than under optimum **moisture** condition. Oxidation of  $35\text{S}^{2-}$  was affected by soil type, **moisture** condition, application rate and presence of **plant**. In Banauang sandy loam soil, there was more  $35\text{SO}_4^{2-}$  released than in San Pablo clayey soil. Under 80% of field capacity condition the oxidation rate was significantly higher than under-water-logged condition. A rate of 25 mgS/kg soil had a higher oxidation of elemental S than of 12.5 mgS/kg soil had a higher **moisture** conditions. The presence of rice **plant** had desirable effect on the oxidation of elemental S. An average percentage of oxidized elemental S increased from 6.09% to 22.96% in Banauang soil and increased from 7.20% to 29.94% in San Pablo soil when planted to rice. Generally, **plant** height, tiller number, dry matter production, and **plant** yields (straw and grain) significantly increased with the application of A, P or Zn. The levels of responses to these elements were dependent on soil condition and stages of **plant** growth.

Descriptors in English: \*ORYZA SATIVA; \*SESBANIA; \*RICE STRAW; \*LOWLAND; \*SULPHATES; \*HYDROGEN SULPHIDE; \*OXIDATION; \*YIELDS; \*PHILIPPINES; ACIDS; ASIA; BYPRODUCTS; CEREAL BYPRODUCTS; CHEMICAL REACTIONS; GRAMINEAE; INORGANIC ACID SALTS; INORGANIC ACIDS; INORGANIC COMPOUNDS; LEGUMINOSAE; ORYZA; PAPILIONOIDEAE; PHYSIOGRAPHIC FEATURES; SALTS; SOUTH EAST ASIA; STRAW;

Descriptors in Spanish: \*ORYZA SATIVA; \*SESBANIA; \*PAJA DE ARROZ; \*TIERRAS BAJAS; \*SULFATOS; \*SULFURO DE HIDROGENO; \*OXIDACION; \*RENDIMIENTO; \*FILIPINAS; ACIDOS; ACIDOS INORGANICOS; ASIA; ASIA SUDORIENTAL; ASPECTOS FISIOGRAFICOS; COMPUESTOS INORGANICOS; GRAMINEAE; LEGUMINOSAE; ORYZA; PAJA; PAPILIONOIDEAE; REACCIONES QUIMICAS; SALES; SALES DE ACIDOS INORGANICOS; SUBPRODUCTOS; SUBPRODUCTOS DE CEREALES;

Descriptors in French: \*ORYZA SATIVA; \*SESBANIA; \*PAILLE DE RIZ; \*REGION DE BASSE ALTITUDE; \*SULFATE; \*SULFURE D'HYDROGNE; \*OXYDATION; \*RENDEMENT; \*PHILIPPINES; ACIDE; ACIDE MINERAL; ASIE; ASIE DU SUD EST; COMPOSE MINERAL; ELEMENT GEOMORPHOLOGIQUE; GRAMINEAE; LEGUMINOSAE; ORYZA; PAILLE; PAPILIONOIDEAE; REACTION CHIMIQUE; SEL; SEL D'ACIDE MINERAL; SOUS PRODUIT; SOUS PRODUIT DE CEREALES;

Section Headings: P35 (NATURAL RESOURCES -- Soil fertility)  
?

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### Status: Path 1 of [Dialog Information Services via Modem]
### Status: Initializing TCP/IP using (UseTelnetProto 1 ServiceID pto-dialog)
Trying 3106900061...Open

DIALOG INFORMATION SERVICES
PLEASE LOGON:
***** HHHHHHHH SSSSSSS?
### Status: Signing onto Dialog
*****
ENTER PASSWORD:
***** HHHHHHHH SSSSSSS? *****
Welcome to DIALOG
### Status: Connected
```

Dialog level 99.12.23D

```
Last logoff: 24feb00 17:58:29
Logon file001 25feb00 11:46:33
*** ANNOUNCEMENT ***
UPDATING RESUMED
***Kansas City Star (File 147)
***
```

```
RELOADED
***Kompass Latin America (File 586)
```

```
>>> Enter BEGIN HOMEBASE for Dialog Announcements <<
>>>      of new databases, price changes, etc.      <<
*****
```

```
For news about price changes for Jan 1, 2000, enter
HELP NEWRATES.
```

\*\*\*\*

```
File 1:ERIC 1966-1999/Dec
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*File 1: File has been reloaded. See HELP NEWS 1.
Limits of /ED and /EJ currently not working.
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Set	Items	Description
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	25feb00 11:46:50	User259868 Session D12.1
\$0.19	0.055	DialUnits File1
\$0.19		Estimated cost File1
\$0.01		TYNET
\$0.20		Estimated cost this search
\$0.20		Estimated total session cost 0.055 DialUnits

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SYSTEM:OS - DIALOG OneSearch
File 5:Biosis Previews(R) 1969-2000/Jan W2
(c) 2000 BIOSIS
*File 5: Updates renamed. See Help News5.
File 6:NTIS 64-2000/Mar W2
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File 10:AGRICOLA 70-2000/Feb
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File 28:Oceanic Abst. 1964-2000/Mar
(c) 2000 Cambridge Scientific Abstracts
File 34:SciSearch(R) Cited Ref Sci 1990-2000/Feb W3
(c) 2000 Inst for Sci Info
File 44:Aquatic Sci&Fish Abs 1978-2000/Mar
(c) 2000 FAO (for ASFA Adv Brd)
File 50:CAB Abstracts 1972-2000/Feb
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 File 60:CRIS/USDA 1998/Sep  
 (c) format only 1998 The Dialog Corporaion pl  
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 File 94:JICST-EPlus 1985-2000/Nov W1  
 (c)2000 Japan Science and Tech Corp(JST)  
 File 98:General Sci Abs/Full-Text 1984-1999/Oct  
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 File 99:Wilson Appl. Sci & Tech Abs 1983-2000/Dec  
 (c) 2000 The HW Wilson Co.  
 File 117:Water Resour.Abs. 1967-2000/Jan  
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 File 143:Biol. & Agric. Index 1983-2000/Dec  
 (c) 2000 The HW Wilson Co  
 File 144:Pascal 1973-2000/Jan  
 (c) 2000 INIST/CNRS  
 File 203:AGRIS 1974-2000/Oct  
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**\*File 306: File has been updated & reloaded. See HELP NEWS 306. New Bluesheet available in F415 & at URL <http://library.dialog.com/bluesheets>.**  
 File 434:SciSearch(R) Cited Ref Sci 1974-1989/Dec  
 (c) 1998 Inst for Sci Info

Set	Items	Description
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?s plant(w)	transformation	
Processed	10 of 20 files ...	
Completed processing all files		
3876935	PLANT	
622121	TRANSFORMATION	
S1	1527	PLANT(W) TRANSFORMATION
?s s1 (w)	whatman?	
	1527	S1
	1419	WHATMAN?
S2	0	S1 (W) WHATMAN?
?s s1 (w)	explant	
	1527	S1
	18669	EXPLANT
S3	0	S1 (W) EXPLANT
?s s1 (s)	whatman?	
	1527	S1
	1419	WHATMAN?
S4	0	S1 (S)WHATMAN?
?s s1(s)	explant	
	1527	S1
	18669	EXPLANT
S5	14	S1(S)EXPLANT

?rd  
 >>>Duplicate detection is not supported for File 60.  
 >>>Duplicate detection is not supported for File 306.

>>>Records from unsupported files will be retained in the RD set.  
 ...completed examining records  
 S6 5 RD (unique items)

?t  
 6/2/1 (Item 1 from file: 5)  
 DIALOG(R) File 5:Biosis Previews(R)  
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12040895 BIOSIS NO.: 199900321414

**Plant regeneration from mature Avena tissue explants.**

AUTHOR: Hassan G(a); Zipf A(a); Sharma G C(a); Wesenberg D

AUTHOR ADDRESS: (a)Department of Plant and Soil Science, Alabama A and M University, Normal, AL, 35762\*\*USA

JOURNAL: Cereal Research Communications 27 (1-2):p25-32 1999

ISSN: 0133-3720

DOCUMENT TYPE: Article

RECORD TYPE: Abstract

LANGUAGE: English

SUMMARY LANGUAGE: English

REGISTRY NUMBERS: 94-75-7: 2 4-D; 1918-00-9: DICAMBA; 1918-02-1: PICLORAM

**DESCRIPTORS:**

MAJOR CONCEPTS: Agronomy (Agriculture); Methods and Techniques  
BIOSYSTEMATIC NAMES: Gramineae--Monocotyledones, Angiospermae,  
Spermatophyta, Plantae

ORGANISMS: Avena (Gramineae)--grain crop

BIOSYSTEMATIC CLASSIFICATION (SUPER TAXA): Angiosperms; Monocots; Plants;  
Spermatophytes; Vascular Plants

CHEMICALS & BIOCHEMICALS: dicamba--plant growth regulator; picloram--  
plant growth regulator; 2,4-D--plant growth regulator

METHODS & EQUIPMENT: embryo explant culture--tissue culture method;  
hypocotyl explant culture--tissue culture method

**CONCEPT CODES:**

52504 Agronomy-Grain Crops

32500 Tissue Culture, Apparatus, Methods and Media

51514 Plant Physiology, Biochemistry and Biophysics-Growth Substances

51524 Plant Physiology, Biochemistry and Biophysics-Apparatus and  
Methods

**BIOSYSTEMATIC CODES:**

25305 Gramineae

?show files; ds;ts6/full/all

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Set	Items	Description
S1	1527	PLANT(W) TRANSFORMATION
S2	0	S1 (W) WHATMAN?
S3	0	S1 (W) EXPLANT
S4	0	S1 (S)WHATMAN?
S5	14	S1(S)EXPLANT
S6	5	RD (unique items)

6/9/1 (Item 1 from file: 5)  
DIALOG(R) File 5:Biosis Previews(R)  
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12040895 BIOSIS NO.: 199900321414

**Plant regeneration from mature Avena tissue explants.**

AUTHOR: Hassan G(a); Zipf A(a); Sharma G C(a); Wesenberg D

AUTHOR ADDRESS: (a)Department of Plant and Soil Science, Alabama A and M University, Normal, AL, 35762\*\*USA

JOURNAL: Cereal Research Communications 27 (1-2):p25-32 1999

ISSN: 0133-3720

DOCUMENT TYPE: Article

RECORD TYPE: Abstract

LANGUAGE: English

SUMMARY LANGUAGE: English

**ABSTRACT:** Successful plant transformation is dependent upon a reliable plant regeneration system. In cereals, immature embryos are the explants of choice but are inconvenient due to their temporal nature and maintenance requirements. The effects of three different auxins, 2,4-D, dicamba, and picloram, on two mature tissue explant types, mature embryo and hypocotyl, of three Avena genotypes, GAF/Park, Park, and 88Ab3073, were evaluated for callus formation, somatic embryogenesis (SE), and plant regeneration capabilities. Both mature embryo and hypocotyl explants were proliferated on modified Murashige and Skoog (MS) basal medium containing 5, 10, and 20  $\mu$ M of each auxin and were regenerated on 1/2-MS medium without hormone. Although plant number was significantly correlated with SE number, it was not absolutely linked to a priori somatic embryogenesis, especially for 88AB3073 explants. While stimulating callus growth, both dicamba and picloram decreased embryogenicity and regenerability over that obtained with 2,4-D. Picloram may be useful for the isolation of SE-related genes as somatic embryogenesis in oat callus was strongly inhibited in the presence of picloram.

REGISTRY NUMBERS: 94-75-7: 2 4-D; 1918-00-9: DICAMBA; 1918-02-1: PICLORAM  
DESCRIPTORS:

MAJOR CONCEPTS: Agronomy (Agriculture); Methods and Techniques

BIOSYSTEMATIC NAMES: Gramineae--Monocotyledones, Angiospermae, Spermatophyta, Plantae

ORGANISMS: Avena (Gramineae)--grain crop

BIOSYSTEMATIC CLASSIFICATION (SUPER TAXA): Angiosperms; Monocots; Plants; Spermatophytes; Vascular Plants

CHEMICALS & BIOCHEMICALS: dicamba--plant growth regulator; picloram--plant growth regulator; 2,4-D--plant growth regulator

METHODS & EQUIPMENT: embryo explant culture--tissue culture method; hypocotyl explant culture--tissue culture method

CONCEPT CODES:

52504 Agronomy-Grain Crops

32500 Tissue Culture, Apparatus, Methods and Media

51514 Plant Physiology, Biochemistry and Biophysics-Growth Substances  
51524 Plant Physiology, Biochemistry and Biophysics-Apparatus and  
Methods  
BIOSYSTEMATIC CODES:  
25305 Gramineae

6/9/2 (Item 2 from file: 5)  
DIALOG(R) File 5:Biosis Previews(R)  
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10704323 BIOSIS NO.: 199799325468

**High frequency shoot regeneration from leaf explants of muskmelon.**

AUTHOR: Yadav R C; Saleh Mohamed T; Grumet Rebecca(a)  
AUTHOR ADDRESS: (a)Hortic. Dep., Mich. State Univ., East Lansing, MI 48824  
\*\*USA

JOURNAL: Plant Cell Tissue and Organ Culture 45 (3):p207-214 1996

ISSN: 0167-6857

RECORD TYPE: Abstract

LANGUAGE: English

**ABSTRACT:** Efficient in vitro plant regeneration systems are critical for many purposes including **plant transformation**. Current regeneration systems for melon (*Cucumis melo* L.) plants generally utilize cotyledon explants; regeneration from melon leaves has received limited attention. We investigated several factors that influence regeneration from melon leaves including: genotype growth conditions and age of the source plant, leaf age, **explant** orientation, gelling agent, and the addition of silver nitrate and sulfonylurea herbicide to the culture media. Critical factors that influenced regeneration were preculture conditions of the donor plants, leaf size, and the use of silver nitrate and Phytigel in the medium. The best results were obtained with 3-4 cm diam leaves excised from pot grown greenhouse or growth chamber plants cultured on MS medium with 5 mu-M IAA, 5 mu-M BA, 1 mu-M ABA, 30 mu-M silver nitrate and 2.6 g l-1 Phytigel. Low concentrations of sulfonylurea herbicide (0.25 mg l-1 DPX-M 6316) also enhanced regeneration. Under optimized conditions 80-100% of the explants regenerated, with 10-100 shoots per **explant**.

REGISTRY NUMBERS: 7761-88-8: SILVER NITRATE; 74-85-1: ETHYLENE; 71010-52-1: PHYTAGEL; 21293-29-8: ABSCISIC ACID; 1214-39-7: BENZYLADENINE; 87-51-4: INDOLE-3-ACETIC ACID; 86-87-3Q: NAPHTHALENEACETIC ACID; 26445-01-2Q: NAPHTHALENEACETIC ACID

DESCRIPTORS:

MAJOR CONCEPTS: Biochemistry and Molecular Biophysics; Cell Biology; Chemical Coordination and Homeostasis; Development; Methods and Techniques; Morphology; Pest Assessment Control and Management; Systematics and Taxonomy

BIOSYSTEMATIC NAMES: Cucurbitaceae--Dicotyledones, Angiospermae, Spermatophyta, Plantae

ORGANISMS: muskmelon (Cucurbitaceae); *Cucumis melo* (Cucurbitaceae)

BIOSYSTEMATIC CLASSIFICATION (SUPER TAXA): angiosperms; dicots; plants; spermatophytes; vascular plants

CHEMICALS & BIOCHEMICALS: SILVER NITRATE; ETHYLENE; PHYTAGEL; ABSCISIC ACID; BENZYLADENINE; INDOLE-3-ACETIC ACID; NAPHTHALENEACETIC ACID

MISCELLANEOUS TERMS: Research Article; ABSCISIC ACID; AGE; BENZYLADENINE; CONDITIONS; COTYLEDON; DEVELOPMENT; ETHYLENE ACTION INHIBITOR; EXPLANT; GELLING AGENT; GENOTYPE; GROWTH; HERBICIDE; HIGH FREQUENCY REGENERATION; IN VITRO PLANT REGENERATION; INDOLE-3-ACETIC ACID; LEAF; METHODOLOGY; MISCELLANEOUS METHOD; MURASHIGE AND SKOOG MEDIUM; NAPHTHALENEACETIC ACID; ORIENTATION; PHYTAGEL; PLANT GROWTH REGULATOR; SHOOT; SILVER NITRATE; SULFONYLUREA

CONCEPT CODES:

02504 Cytology and Cytochemistry-Plant

10060 Biochemical Studies-General

50526 Botany, General and Systematic-Dicotyledones

51000 Morphology, Anatomy and Embryology of Plants

51510 Plant Physiology, Biochemistry and Biophysics-Growth,  
Differentiation  
51514 Plant Physiology, Biochemistry and Biophysics-Growth Substances  
51524 Plant Physiology, Biochemistry and Biophysics-Apparatus and  
Methods  
54600 Pest Control, General; Pesticides; Herbicides  
BIOSYSTEMATIC CODES:  
25890 Cucurbitaceae

6/9/3 (Item 3 from file: 5)  
DIALOG(R)File 5:Biosis Previews(R)  
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09674295 BIOSIS NO.: 199598129213

The competence of cells for cell division and regeneration in tobacco  
explants depends on cellular location, cell cycle phase and ploidy level.  
AUTHOR: Gilissen Luud J W(a); Van Staveren Marjo J; Hakkert Johanna C;  
Smulders Marinus J M; Verhoeven Harrie A; Creemers-Molenaar Jantina  
AUTHOR ADDRESS: (a)Dep. Cell Biol., DLO-Cent. Plant Breed. Reprod. Res.,  
P.O. Box 16, NL-6700 AA Wageningen\*\*Netherlands  
JOURNAL: Plant Science (Limerick) 103 (1):p81-91 1994  
ISSN: 0168-9452  
DOCUMENT TYPE: Article  
RECORD TYPE: Abstract  
LANGUAGE: English

ABSTRACT: This work concerns application of flow cytometry (FCM) and confocal laser scanning microscopy (CLSM) to investigate the competence of cells for cell division and regeneration. FCM analysis of freshly-cut thin cell layer (TCL) explants of *Nicotiana tabacum*, excised from upper internodes of vegetative plants, revealed that one-quarter of the cells had the 2C nuclear DNA content, whereas of the other cells most nuclei had the 4C and some had the 8C DNA content. Cytometric examination using CLSM showed that the 2C nuclei were mainly located in the epidermis and subepidermis, and the 4C nuclei predominantly in the cortical tissue. During culture of the explants, part of the cortical cells went through mitosis from the first day onwards, and formed callus from which predominantly diploid and some tetraploid roots regenerated at low frequency. Most cortical cells were thus in the G-2 phase of the diploid cell cycle. FCM analysis showed that another fraction of the 4C cortical cells was induced to endoreduplicate to 8C cells. These cells thus had previously switched to the G-1 phase of the tetraploid cell cycle. CLSM analysis revealed that subepidermal and epidermal cells, respectively, underwent cell division from the second and third day onwards. Shoot primordia developed from cells of both cell layers together. Most shoot regenerants were normal diploids, some were mixoploids or tetraploids. The combination of FCM and CLSM allowed identification of the cell cycle phase, the ploidy level, the position of the cell, and the cellular development. The results give insight into the involvement of these parameters in the competence for cell division and regeneration at the level of the individual **explant** cells, and are therefore relevant for cellular and molecular approaches to **plant transformation**.

DESCRIPTORS:

MAJOR CONCEPTS: Cell Biology; Development; Genetics; Methods and Techniques  
BIOSYSTEMATIC NAMES: Solanaceae--Dicotyledones, Angiospermae,  
Spermatophyta, Plantae  
ORGANISMS: *Nicotiana tabacum* (Solanaceae)  
BIOSYSTEMATIC CLASSIFICATION (SUPER TAXA): angiosperms; dicots; plants;  
spermatophytes; vascular plants  
MISCELLANEOUS TERMS: CONFOCAL LASER SCANNING MICROSCOPY; FLOW CYTOMETRY  
; PLANT TRANSFORMATION  
CONCEPT CODES:  
02504 Cytology and Cytochemistry-Plant

03504 Genetics and Cytogenetics-Plant  
32500 Tissue Culture, Apparatus, Methods and Media  
51510 Plant Physiology, Biochemistry and Biophysics-Growth,  
Differentiation  
51524 Plant Physiology, Biochemistry and Biophysics-Apparatus and  
Methods  
01052 Microscopy Techniques-General and Special Techniques  
BIOSYSTEMATIC CODES:  
26775 Solanaceae

6/9/4 (Item 4 from file: 5)  
DIALOG(R) File 5:Biosis Previews(R)  
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09542573 BIOSIS NO.: 199497550943  
**Factors that affect leaf regeneration efficiency in apple, and effect of antibiotics in morphogenesis.**  
AUTHOR: Yepes Luz Marcella; Aldwinckle Herb S  
AUTHOR ADDRESS: Dep. Plant Pathol., Cornell Univ., NYS Agric. Exp. Stn.,  
Geneva, NY 14456\*\*USA  
JOURNAL: Plant Cell Tissue and Organ Culture 37 (3):p257-269 1994  
ISSN: 0167-6857  
DOCUMENT TYPE: Article  
RECORD TYPE: Abstract  
LANGUAGE: English

ABSTRACT: Several factors that affect the frequency of organogenesis in apple leaf explants were examined for the scion cultivars 'Empire', 'Freedom', 'Golden Delicious', 'Liberty', 'McIntosh', and 'Mutsu' and for the rootstocks Malling 7A and Malling 26. The main factors affecting morphogenesis were BA concentration, basal medium, leaf **explant** origin and maturity, **explant** orientation, and photosynthetic photon flux. Depending on the genotype, optimal regeneration was obtained using either 22.2 or 31.1 mu-M BA and the N6 basal medium, with the exception of 'Golden Delicious' which regenerated better on MS medium. After 6 weeks, the average number of shoots per segment varied from 5 to 16, and the percentage of regeneration between 70 and 100%, depending on the genotype tested and the maturity of the **explant**. Regeneration capacity increased dramatically from the tip towards the base of the leaf, and was higher from the middle to the proximal end. Cefotaxime and carbenicillin, two antibiotics commonly used during transformation studies to eliminate Agrobacterium tumefaciens from plant tissue, were tested to determine their effect on morphogenesis. Cefotaxime at a dose of 250 mg l-1 enhanced regeneration and shoot development, whereas carbenicillin at a dose of 500 mg l-1 induced abundant callus formation and inhibited regeneration. Kanamycin, a widely used selection agent for **plant transformation**, strongly inhibited regeneration even at very low doses. Schemes for selection and recovery of transgenic apple plants when kanamycin is used as the selection agent are discussed.

REGISTRY NUMBERS: 1214-39-7: BENZYLADENINE; 63527-52-6: CEFOTAXIME;  
4697-36-3: CARBENICILLIN; 59-01-8Q: KANAMYCIN; 8063-07-8Q: KANAMYCIN  
DESCRIPTORS:

MAJOR CONCEPTS: Biochemistry and Molecular Biophysics; Development;  
Genetics; Infection; Methods and Techniques; Morphology; Pest  
Assessment Control and Management; Physiology

BIOSYSTEMATIC NAMES: Rhizobiaceae--Eubacteria, Bacteria; Rosaceae--  
Dicotyledones, Angiospermae, Spermatophyta, Plantae

ORGANISMS: Agrobacterium tumefaciens (Rhizobiaceae); Malus domestica  
(Rosaceae)

BIOSYSTEMATIC CLASSIFICATION (SUPER TAXA): angiosperms; bacteria; dicots;  
eubacteria; microorganisms; plants; spermatophytes; vascular plants

CHEMICALS & BIOCHEMICALS: BENZYLADENINE; CEFOTAXIME; CARBENICILLIN;  
KANAMYCIN

MISCELLANEOUS TERMS: BASAL MEDIUM; BENZYLADENINE CONCENTRATION; CALLUS

FORMATION; CARBENICILLIN; CEFOTAXIME; CULTIVAR EMPIRE; CULTIVAR FREEDOM ; CULTIVAR GOLDEN DELICIOUS; CULTIVAR LIBERTY; CULTIVAR MCINTOSH; CULTIVAR MUTSU; EXPLANT ORIENTATION; GENOTYPE; KANAMYCIN; LEAF EXPLANT ORIGIN; PHOTOSYNTHETIC PHOTON FLUX; REGENERATION INHIBITION; ROOTSTOCK MALLING 26; ROOTSTOCK MALLING 7A

CONCEPT CODES:

- 03504 Genetics and Cytogenetics-Plant
- 10010 Comparative Biochemistry, General
- 31000 Physiology and Biochemistry of Bacteria
- 32500 Tissue Culture, Apparatus, Methods and Media
- 51000 Morphology, Anatomy and Embryology of Plants
- 51510 Plant Physiology, Biochemistry and Biophysics-Growth, Differentiation
- 51524 Plant Physiology, Biochemistry and Biophysics-Apparatus and Methods
- 54504 Phytopathology-Diseases Caused by Bacteria
- 54600 Pest Control, General; Pesticides; Herbicides
- 10060 Biochemical Studies-General
- 25508 Developmental Biology-Embryology-Morphogenesis, General

BIOSYSTEMATIC CODES:

- 06509 Rhizobiaceae (1992- )
- 26675 Rosaceae

6/9/5 (Item 1 from file: 203)

DIALOG(R) File 203:AGRIS

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02018105 AGRIS No: 96-105731

**Histology of somatic embryogenesis and evaluation of somaclonal variation ([Histologia de embriogénesis somática y evaluación de variación somaclonal])**

Raemakers, C.J.J.M.; Jacobsen, Evert; Visser, Richard G.F.

Conference Title: 2.The Cassava Biotechnology Network

Conference Location and Year: Bogor (Indonesia), 2-26 Aug 1994

**The Cassava Biotechnology Network : proceedings of the second international scientific meeting, Bogor, Indonesia, 22-26 August 1994 ([La red de biotecnología de yuca : memorias de la segunda reunión científica internacional, Bogor, Indonesia, 22-26 agosto 1994])**

Centro Internacional de Agricultura Tropical, Cali (Colombia)

Publisher: CIAT , Cali (Colombia), 1995, v. 1 p. 336-354

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Language: English Summary Language: English

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Availability: CIAT (Intl Centre for Tropical Agriculture) Center

Document Type: Analytic, Monograph, Conference, Summary,

Nonconventional Literature

Journal Announcement: 2209 Record input by CIAT (Intl Centre for Tropical Agriculture)

Abstract in English

Genetic modification of cassava is dependent on the availability of efficient regeneration procedures and the resulting plants should be true to type. A system has been developed where somatic embryos can be culture to produce secondary embryos (cyclic somatic embryogenesis). The origin of secondary embryos was studied using histological and scanning electron microscopical techniques. It was concluded that secondary embryos originate directly from the **explant**, from internal cell layers and from multiple cells. These three characteristics explain the difficulties observed in using somatic embryogenesis for **plant transformation** purposes. Strategies to overcome these problems will be discussed. Further, it was observed that most mature embryos did not possess a root meristem because of the callusing effect of 2,4-D. This might explain the difficulties observed with shoot conversion of somatic embryos. An advantage of the multicellular origin of somatic embryos is the fact that

it might give rise to genetically stable plants. Although a clear example of genetic induced variation was found, it was concluded that the regeneration process was not accompanied with clear negative plant development characteristics.

Descriptors in English: \*MANIHOT ESCULENTA; \*IN VITRO CULTURE; \*SOMATIC EMBRYOS; \*EMBRYONIC DEVELOPMENT; \*PLANT TISSUES; BIOLOGICAL DEVELOPMENT; CULTURE TECHNIQUES; DEVELOPMENTAL STAGES; EUPHORBIACEAE; MANIHOT; PLANT ANATOMY; PLANT DEVELOPMENTAL STAGES; PLANT EMBRYOS;

Descriptors in Spanish: \*MANIHOT ESCULENTA; \*CULTIVO IN VITRO; \*EMBRION SOMATICO; \*DESARROLLO EMBRIONARIO; \*TEJIDOS VEGETALES; ANATOMIA DE LA PLANTA; DESARROLLO BIOLOGICO; EMBRIONES VEGETALES; ETAPAS DE DESARROLLO; ETAPAS DE DESARROLLO DE LA PLANTA; EUPHORBIACEAE; MANIHOT; TECNICAS DE CULTIVO;

Descriptors in French: \*MANIHOT ESCULENTA; \*CULTURE IN VITRO; \*EMBRYON SOMATIQUE; \*DEVELOPPEMENT EMBRYONNAIRE; \*TISSU VEGETAL; ANATOMIE VEGETALE; DEVELOPPEMENT BIOLOGIQUE; EMBRYON VEGETAL; EUPHORBIACEAE; MANIHOT; STADE DE DEVELOPPEMENT; STADE DE DEVELOPPEMENT VEGETAL; TECHNIQUE DE CULTURE;

Section Headings: F02 (PLANT PRODUCTION -- Plant propagation) ; F62 (PLANT PRODUCTION -- Plant physiology - growth and development)  
?

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